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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,119	11/28/2001	Sean B. Simmons	555255012299	1511

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EXAMINER	
PERILLA, JASON M	

ART UNIT	PAPER NUMBER
2638	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/996,119	SIMMONS ET AL.	
	Examiner	Art Unit	
	Jason M. Perilla	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4,6-9,21,23,24 and 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21,23,24 and 29* is/are allowed.

6)☒ Claim(s) *2,4 and 6-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 2, 4, 6-9, 21, 23, 24, and 29 are pending in the instant application.

Response to Amendment/Argument

2. In view of the Applicant's remarks and claim amendments filed January 20, 2006, the prior art rejections set forth in the office action dated November 28, 2005 have been withdrawn.

3. New prior art rejections are set forth below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2, 4, 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwak (U.S. Pat. No. 6175391) in view of Critchlow (U.S. Pat. No. 5276706 – previously cited).

Regarding claim 2, Kwak discloses by figure 7a a synchronization (sync) signal detector comprising: c) a waveform correlator (31), the waveform correlator receiving a input signal from an antenna and tuner (fig; "received data stream") and correlating it with a known correlation signal (col. 7, lines 36-41); d) a peak detector (36) connected to the waveform correlator (col. 8, lines 31-40); and e) a synchronization information calculator (35) connected to the waveform correlator and the peak detector, the synchronization information calculator providing data (col. 9, lines 29-35) to one or more

components (i.e. 37) external to the synchronization signal detector, the data provided by the synchronization information calculator including information indicating whether or not the input signal includes a valid sync signal (col. 9, lines 23-28). Kwak discloses that the waveform correlator correlates the received signal with a known correlation sync signal from memory (col. 4, line 60 – col. 5, line 3; "already stored symbol pattern") but does not disclose that the sync signal is generated from a sync signal generator and sampled by a sampler connected between the sync signal generator and the waveform correlator. However, Critchlow teaches that a sync signal may be generated by a sync signal generator (fig. 1, ref. 36) for use in a waveform correlator (fig. 1, ref. 30). One skilled in the art would be aware that the generation of a sync signal may provide the advantage of saving cost. The generation of the sync signal may be more cost effective than storing it in memory. Further, it is apparent from the teachings of Critchlow that the output (38) of the sync signal generator is a digital signal because it is phase shifted by a symbol or sample portion according to a pattern rotator (37) (col. 7, lines 5-65). One skilled in the art is aware that the synchronization signal generator must contain a sampler (implicit) to output digital data from the synchronization waveform. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a sync pattern generator and sampler as taught by Critchlow in place of the memory of Kwak to because it may be more cost effective.

Regarding claim 4, Kwak in view of Critchlow disclose the limitations of claim 2 as applied above. Further, Kwak discloses that the sync signal detector is implemented in a communication signal (television) receiver (abstract).

Regarding claim 6, Kwak in view of Critchlow disclose the limitations of claim 2 as applied above. Further, Kwak discloses that, as broadly as claimed, the synchronization information calculator (fig. 7a, ref. 35) data provided includes a modulation index because it includes data regarding the position or index of the sync signal (col. 9, lines 29-35).

Regarding claim 7, Kwak in view of Critchlow disclose the limitations of claim 2 as applied above. Kwak in view Critchlow do not explicitly disclose that the data provided by the synchronization information calculator includes a frequency offset. However, Critchlow teaches that a waveform correlator (fig. 1, ref. 30) utilized with a peak detector (fig. 1, ref. 44) and a synchronization information calculator (fig. 1, ref. 46) to determine a frequency offset (col. 8, lines 40-45). Critchlow teaches that the determination and correction of a frequency offset is required for effective communication (col. 1, line 58 – col. 2, line 38). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to determine a frequency offset with the synchronization information calculator as taught by Critchlow in the detector of Kwak because the frequency offset data could advantageously be utilized to correct the frequency offset and enable robust communication.

Regarding claim 9, Kwak in view of Critchlow disclose the limitations of claim 2 as applied above. Further, Critchlow discloses that the sync signal detector is implemented in a cellular telephone or communications system (abstract).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al (US 5754603; hereafter "Thomas" – previously cited)

Regarding claim 8, Kwak in view of Critchlow disclose the limitations of claim 2 as applied above. Kwak in view of Critchlow do not explicitly disclose that the waveform correlator and peak detector are implemented in a digital signal processor (DSP). However, Thomas teaches that a digital signal processor (DSP) can be utilized to easily implement correlation steps (col. 2, lines 35-40). In the method of Thomas, correlation is performed by a DSP (fig. 1, ref. 28). One skilled in the art is aware that a DSP can be utilized to execute computer readable program code to implement the steps of a correlation easily as taught by Thomas. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a DSP as taught by Thomas for carrying out correlation and peak detection in the detector of Kwak in view of Critchlow because the DSP provides easy implementation of the device.

Allowable Subject Matter

7. Claims 21, 23, 24, and 29 are indicated to contain allowable subject matter.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to further show the state of the art with respect to sync signal detectors.

U.S. Pat. No. 3766316 to Hoffman et al.

U.S. Pat. No. 6014416 to Shin et al.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Perilla
March 8, 2006

jmp

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER